

J Immunol. 1983 Mar;130(3):1024-6.

Relapsing murine experimental allergic encephalomyelitis induced by myelin basic protein.

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Experimental allergic encephalomyelitis (EAE), an experimental autoimmune disease of the central nervous system (CNS), is readily induced in many mammalian species by immunization with CNS tissue or myelin basic protein (MBP) purified from the CNS. EAE has been frequently used as a model for multiple sclerosis (MS). However, EAE generally presents as an acute monophasic disease in the adult animal after immunization with MBP. After recovery, the animal is resistant to rechallenge with encephalitogen (1). Two exceptions to these observations have been reported. McFarlin et al. (2) reported that a variable number of Lewis rats showed signs of a single, mild relapse about a week after recovery from MBP-induced acute EAE. Panitch and Ciccone (3) have reported induction of recurrent EAE in rats immunized with human MBP. Chronic, relapsing EAE has been induced in the mouse; however, an apparent requirement for CNS tissue had been noted (4, 5). Recently, during the course of a series of experiments on the induction of EAE in SJL/J, PL/J, and (SJL/J X PL/J)F1 (SPL F1) mice, it was observed that the F1 mice frequently had paralytic relapses after recovery from MBP-induced symptoms. Experiments were initiated to examine this phenomenon, and the findings are presented below.